**Tom – These are questions 4 and 5 but my computer won’t let me renumber them.**

1. **What organizations drive the data sets that are captured?**

There are a number of organizations that drive the data sets:

Within UAB, the hospital and suppliers (largely Cardinal) and manufacturers drive the data that is entered into the item master file in Lawson. Each item has an item master, and there are 31,495 items in the Lawson Item File. The item master contains all of the different item numbers (manufacturer, distributor, and hospital Lawson numbers), descriptive information, cost, and additional manufacturer information for a specific item. The item master is composed of a number of tables, all of which reside, along with other tables, in the Lawson relational database. The item master is related to several other files:

* packaging table – this table describes the kind of packaging that the supply arrives in. This is especially important to keep numbers accurate and indicate the quantity as an each, a case, a pallet, etc.
* vendor item file – this set of tables contains information about vendor agreements including the contract and other necessary vendor information.

Specialty items are ordered through an approval process, because they don’t have Lawson numbers and thus aren’t part of the item master files.

UAB uses a set of codes call United Nations Standard Products and Services Classification (UNSPSC) codes that allow the Support Services Department (SSD) to compare against other institutions. UNSPSC codes are not item codes or item numbers, but instead are classification codes that group similar products and facilitate commerce between buyers and sellers, allowing buyers to code purchases to analyze their spending ("What is UNSPSC?"). UNSPSC codes assist with analysis across the UAB enterprise with a common set of identifiers.

Data is also affected by GS1 standards for healthcare supply chain. The GS1 system enables global and unique identification of products and locations, as well as the continuous, automatic update of standardized product information across all supply chain partners (Pelletier, 2009)

As described on the GS1 Standardization…Stat! page, “GS1 data standards support healthcare business processes and enable many benefits for patient safety and supply chain management, including:

* Fewer medication errors
* More effective product recalls
* Efficient traceability
* More time with patients, less time on manual documentation
* Cost reduction through increased supply chain efficiency
* Improved order and invoice processes
* More efficient receiving
* Reduced inventory
* Increased productivity in business processes
* Improved shelf life management
* Improved service levels/fill rate
* Elimination of product re-labeling with proprietary codes
* Supports regulatory compliance”

("Standardization… Stat! Improving the Healthcare Supply Chain with Data Standards", 2010)

This standardization is not yet universal. Many institutions have already agreed on sunrise dates for implementing GS1 standardization in 2010. UAB does not currently adhere to these standards, but may be affected by them if Cardinal Health adopts them. Cardinal Health and Mayo Clinic have already implemented GS1.

Standardization does affect UAB in terms of Electronic Data Interchange (EDI) for invoicing and payment. This functionality is provided by the vendor Global Healthcare Exchange (GHX) which integrates with Lawson to automate the hospital’s procurement to payment cycles (Pelletier, 2009). GHX uses Global Location Numbers (GLNs) as part of the GS1 standard to maintain a single address for all provider facilities that reconcile with a physical address maintained by the US Postal Service. Each GLN is specific to only one exact and very precise location within the world (Pelletier, 2009). The result is that vendors who also use the GLN standard have the exact ship to address for the facility, ensuring correct delivery. This also eliminates duplicate and redundant accounts that may be in the system for any vendor.

The Joint Commission may also drive data capture in Lawson. The Joint Commission’s National Patient Safety Goals include guidelines for labeling medications. This is related to the Lawson project insofar as medications must be relabeled if the barcode containing GS1 standard information is not on the medication itself but some kind of external packaging that is removed before it reaches the supply cabinet or the patient. In addition, the Joint Commission has standards for emergency management. These standards may affect materials management in terms of keeping a specific minimum supply of materials on hand in case of disaster. We learned on our site visit that UAB can order additional supplies based on previous use if a disaster (such as a hurricane or snow storm) is anticipated.

1. **What electronic data feeds into the upstream system and what data/information is fed to downstream systems?**

Data going upstream (into Lawson) includes:

* Data from the university-wide vendor management system via an Oracle interface
* Orders from nurses and unit secretaries, although this technically occurs within Lawson’s online interface
* Data from barcode scanning when supplies arrive by Cardinal Health truck or through UPS/FedEx

In terms of the Lawson online interface, users can order an item by entering the Lawson number if they know it, or can use a shopping paradigm to search the product catalog and add products to a cart. They can also use templates created by SSD staff based on common product sets to place standard orders.

Data also comes in to Lawson from the handheld devices the counters use each night to count the existing supply inventory. These handhelds contain forms for noting existing supply according to the physical layout of the closet or cabinet. After the counter is finished, he or she syncs the handheld with the Lawson system. UAB is currently working on implementing an RFID system that would allow counters to upload their inventory counts in real time, which will improve the process flow by allowing orders to be placed almost immediately.

Data downstream (out of Lawson) to vendors is done through GHX as mentioned above. Orders go into Lawson and become requisitions, which then become purchase orders, which then go through the GHX EDI system for vendor fulfillment.

The GHX system integrates with Lawson to allow UAB to automate the invoicing lifecycle. This improves payment accuracy and reduces invoice processing cycle times ("GHX At-A-Glance,"). As such, data moves from Lawson to GHX in the form of purchase order and purchase order acknowledgement data, and payments in an electronic data interchange (EDI) through a secure Internet connection. This is how Lawson pays Cardinal Health, which services the majority of UAB’s supply needs, as well as AllMed, a minority supply vendor, and various other specialty vendors.

Data moves from Lawson to Crystal Reports via an Open Data Base Connectivity (ODBC) connection. Crystal Reports is used to create specific reports for UAB, as Lawson’s canned reports are not sufficient.

Data also moves from Lawson to a number of UAB Oracle systems through interfaces. These interfaces include:

* Purchase order generation
* Accounts payable
* Finance for month-end close
* Check writing
* HealthQuest – charge master application that handles patient chargeable items (any item over $15 each)

An interface was created during the Lawson implementation in 2002-2003 to bring data into the system from the legacy ESI Nova system. Although all of the data from ESI Nova was brought into Lawson, manual data entry was also necessary because ESI Nova didn’t contain the same level of detail as Lawson, and didn’t do the more rigorous 3-way matching that Lawson does.

Sources

GHX At-A-Glance. Retrieved from <http://www.ghx.com/DesktopModules/Bring2mind/DMX/Download.aspx?TabId=716&>

Pelletier, K. (2009). Mayo Clinc/Cardinal Health GLN Implementation: Improving Patient Safety and Supply Chain Efficiency with GS1 Standards: Mayo Clinic.

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